JOURNAL OF RHEOLOGY

TRANSACTIONS OF THE SOCIETY OF RHEOLOGY

Contents

Volume 24, 1980

Issue 1, February 1980

Studies on Droplet Deformation and Breakup. II. Breakup of a Droplet in Nonuniform Shear Flow
H. B. Chin and C. D. Han 1

On the Normal Stress Effect and the Barus Effect of Polymer Melts
Y. Hori and S. Okubo 39

Secondary Flow and Stress Birefringence Patterns in the Pressure Hole
C. D. Han and H. J. Yoo 55

Rheological Properties of an Aqueous Solution of the Polymer Separan MG200
D. R. Oliver and S. S. Rao 81

Dynamic Viscoelastic Properties of Gelatin Gels in Glycerol–Water Mixtures
J.-L. Laurent, P. A. Janmey, and J. D. Ferry 87

Some Viscoelastic Properties of Styrene/Acrylic Polymers
H. P. Schreiber, G. Thibault, and C. Prairie 99

NOTES

Criticism of "Rheological Behavior of Flocculated and Dispersed Aqueous Kaslin Suspensions in Pipe Flow," by Heywood and Richardson
A. B. Metzner and J. F. Richardson 115

Information for Contributors 123

Issue 2, April 1980

Experimental Tests of a Few Constitutive Models for Polymer Solutions Based on Birefringence Data in Time-Dependent Fields
K. Osaki, N. Bessho, T. Kojimoto, and M. Kurata 125

A Rheological Equation of State for Dilute Solutions of Nearly-Hookean Dumbbells
R. C. Armstrong and S. Ishikawa 143

Velocity Measurements in the Die Entry Region of a Capillary Rheometer
A. V. Ramamurthy and J. C. H. McAdam 167

The Stress Clock Function in Viscoelasticity
B. Bernstein and A. Shokooh 189

Measurement of the Rheological Properties of Concentrated Emulsions
C. D. Han and R. G. King 213

Time-Dependent Behavior of Viscoelastic Suspensions
K. Umeya and Y. Otsubo 239

NOTES

Model Analysis of Oscillating Flow of High-Density Polyethylene Melt
S. Okubo and Y. Hori 253

Abstracts from the *Journal of The Society of Rheology, Japan* 259

Issue 3, June 1980

Concentration Dependence of the Second-Order Fluid Coefficients for Not Infinitely Dilute Polymer Solutions
P. Brunn 263

Experimental Determination of Secondary Normal Stress Difference in Annular Flow of Polymer Melts
S. Okubo and Y. Hori 275

Review of the Role of Colloidal Forces in the Rheology of Suspensions
W. B. Russel 287

NOTES

On Correlations of Network Model Parameters for Polystyrene Solutions
D. DeKee and P. J. Carreau 319

Reduction of Axial Compliance in an R-17 Weissenberg Rheogoniometer
S. Ramachandrian and E. B. Christiansen 325

Abstracts of the 2nd Joint Meeting of the U.S. and Japan Societies of Rheology 333

Issue 4, August 1980

The Normal Stress Response in Nonlinear Viscoelastic Materials: Some Experimental Findings
G. B. McKenna and L. J. Zapas 367

Rheological Properties of Suspensions of Ionic Spherical Particles
T. Matsumoto, O. Yamamoto, and S. Onogi 379

Gravitational Flows of Granular Materials with Incompressible Grains
J. W. Nunziato, S. L. Passman, and J. P. Thomas, Jr. 395

Viscosity and Microstructure of Polyethylene–Poly(Methyl Methacrylate). Melt Blends: Some Simple Interpretations
C. B. Martinez and M. C. Williams 421

Linearization of Relaxation and Creep Curves of Solid Biological Materials
M. Peleg 451

Rheological Properties of Liquid Crystalline Solutions of Poly-*p*-Phenyleneterephthalamide in Sulfuric Acid
D. G. Baird 465

Some Methods of Measurement of an Elastic Strain-Energy Function of the Valanis–Landel Type
E. A. Kearsley and L. J. Zapas 483

NOTES

On Papers by Chan, White, and Oyanagi and by Goddard on Elongational Flow Behavior of Fiber-Reinforced Polymer Melts
J. L. White and L. Czarnecki 501

On the Use of Mixed Corotational and Codeformational Properties in Constitutive Equations
H. C. Lau and W. R. Schowalter 507

Stress Measurements at the Start of Shear Flow: Comparison of Data from a Modified Weissenberg Rheogoniometer and from Flow Birefringence
M. Takahashi, T. Masuda, N. Bessho, and K. Osaki 517

Information for Contributors 521

Issue 5, October 1980

Symposium on Polymeric Drag Reduction

Preface
J. L. Zakin 523

Drag Reduction in a 90° Triangular Open Channel
H. Usui and T. F. Irvine, Jr. 525

Reduction of Drag Experienced by a Disk Rotating in Viscoelastic Polymer Solutions under Laminar Flow Conditions
J. J. Ulbrecht and C. A. Gasparetto 551

Drag Reduction of Well-Mixed Solutions of Poly(ethylene Oxide) and Organic Dyes in Water
N. S. Berman, R. B. Berger, and J. R. Leis 571

Reduction of Secondary Motion in Curved Tubes by Polymer Additives
H. Y. Tsang and D. F. James 589

Studies of Drag Reduction Conducted over a Broad Range of Pipeline Conditions when Flowing Prudhoe Bay Crude Oil
E. D. Burger, L. G. Chorn, and T. K. Perkins 603

Near-Field Viscoelastic Effects during Thin-Slit Drag-Reducing Polymer Ejection
D. H. Fruman and P. Galivel 627

Polymer-Induced Fluctuations in High-Strain-Rate Laminar Flows
F. H. Abernathy, J. R. Bertschy, R. W. Chin, and D. E. Keyes 647

Polymer Drag Reduction in Large Pipes and Sewers: Results of Recent Field Trials
R. H. J. Sellin and M. Ollis 667

Drag Reduction—Jet Breakup Correlation with Kerosene-Based Additives
J. W. Hoyt, J. J. Taylor, and R. L. Altman 685

NOTE

Comment on Huilgol's Interpretation of a Stress Relation for a Corotational Model
J. D. Goddard 701

ERRATUM

The Stress Clock Function in Viscoelastivity
B. Bernstein and A. Shokooh 703

Issue 6, December 1980

Effects of Rotary Brownian Motion in Rheological Transients of Suspensions of Spheroids
M. Zuzovsky, Z. Priel, and S. G. Mason 705

Free Surface on a Simple Fluid between Cylinders Undergoing Torsional Oscillations. IV. Oscillating Rods
B. E. D. Kolpin, G. S. Beavers, and D. D. Joseph 719

Prediction of Velocity Profile in Fluid in Which Yield Stress Varies With Depth
Thomas M. Walski 741

Viscosities and Normal Stress Coefficients of High Impact Polystyrene Fluids
Robert L. Kruse and J. H. Southern 755

Concentrated Solution Viscosity Behavior at Elevated Temperatures—Polystyrene in Ethylbenzene
Robert A. Mendelson 765

Broad Shear Range Viscometry of High Polymer Solutions: Polystyrene and Polyisobutene in Decalin
T. Shimida, P. L. Horng, and R. S. Porter 783

Shear-Induced Structure in a Concentrated Suspension of Solid Spheres
F. Gadala-Maria and A. Acrivios 799

Thermal and Dynamic Behavior of the Necked Region in Polycarbonate
G. C. Papanicolaou, A. Marchese, and P. S. Theocaris 815

A Simple Low Deborah Number Model for Unsteady Hydrodynamic Lubrication, Including Fluid Inertia
J. A. Tichy and M. F. Modest 829

Dependence of the Elongational Behavior of Polystyrene Melts on Molecular Weight and Molecular Weight Distribution
H. Munstedt 847

Abstracts from the Journal of The Society of Rheology, Japan 869

Abstracts from The Society of Rheology Golden Jubilee Meeting 877

Author Index to Volume 24 979

Subject Index to Volume 24 983
Information for Contributors 987
Volume Contents iii